National Institute of Environmental Health Sciences

Firm relocation as adaptive response to climate change and weather extremes

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Year: 2011
Journal: Global Environmental Change : Human and Policy Dimensions. 21 (1): 123-133

Abstract:

Growing scientific evidence suggests that human-induced climate change will bring about large-scale environmental changes such as sea-level rise and coastal flooding, extreme weather events and agricultural disruptions. The speed and extent of these changes and the expected impacts on social and corresponding economic and industrial systems are now moving to the forefront of debates. In this paper, we argue that climate change will lead to significant disruptions to firms which might ultimately create the necessity of a geographical shift of firm and industrial activities away from regions highly affected by climate change. Such a shift might become necessary due to (1) direct disruptions through climate change impacts on firm operations, for instance through droughts, floods, or sea level rise, and due to (2) disruptions in a firm's supplier, buyer or resource base that lead to flow-on effects and adverse consequences for a firm. We propose a framework for integrating firm relocation decisions into firm adaptive responses to climate change. The framework consists of three assessment steps: the level of risk from climate change impacts at a firm's location, the feasibility of relocation, and associated costs and benefits. We apply the framework to two case examples. The first case of electricity distribution firms in Victoria/Australia illustrates how the relocation (undergrounding) of cables could decrease the vulnerability of distribution networks to bushfires and the risk of electricity-caused fires, but would require significant investments. The second case of firms in the Australian pastoral industry points to geographic diversification of pastoral land holdings as possible adaptation option, but also to constraints in form of availability of suitable properties, ties to local communities, and adverse impacts on biodiversity. Implications for adaptation research and practice are outlined.

Source: http://dx.doi.org/10.1016/j.gloenvcha.2010.09.010

Resource Description

Communication:

resource focus on research or methods on how to communicate or frame issues on climate change; surveys of attitudes, knowledge, beliefs about climate change

A focus of content

Communication Audience:

audience to whom the resource is directed

Policymaker

Exposure :

weather or climate related pathway by which climate change affects health

Extreme Weather Event, Food/Water Security, Human Conflict/Displacement, Sea Level Rise

Extreme Weather Event: Flooding

Food/Water Security: Agricultural Productivity

Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

Geographic Location:

resource focuses on specific location

Non-United States

Non-United States: Australasia

Health Co-Benefit/Co–Harm (Adaption/Mitigation):

specification of beneficial or harmful impacts to health resulting from efforts to reduce or cope with greenhouse gases

A focus of content

Health Impact:

specification of health effect or disease related to climate change exposure

Health Outcome Unspecified

Mitigation/Adaptation:

mitigation or adaptation strategy is a focus of resource

Adaptation

Population of Concern: A focus of content

Other Vulnerable Population: People and companies in sea-level rise areas and those affected by extreme weather events

Resource Type:

format or standard characteristic of resource

Review

Resilience:

capacity of an individual, community, or institution to dynamically and effectively respond or adapt to shifting climate impact circumstances while continuing to function

A focus of content

Timescale:

time period studied

Time Scale Unspecified